

**REMARKS**

The applicants note with appreciation the acknowledgement of the claim for priority under section 119 and the notice that all of the certified copies of the priority documents have been received.

The applicants acknowledge and appreciate receiving a copy of form PTO-1449, on which the examiner has initialed all listed items.

Claims 1 – 17 are pending. Claims 5 – 17 have been added. The applicants respectfully request reconsideration and allowance of this application in view of the above amendments and the following remarks.

Claims 1 – 4 were rejected under 35 USC 102(e) as being anticipated by U.S. Patent 6,644,134, Laidlaw et al. (“Laidlaw”). The rejection is respectfully traversed for reasons including the following, which are provided by way of example.

As described in the application, the invention is directed to solving the problem that a conventional magnetic shield (e.g., Fig. 11, element 170) utilized with a torque sensor is not compact in size and is not conducive to practical use, due to installability considerations. (E.g., specification page 1, lines 25 – 29.)

According to the claims, e.g., claim 1, the invention is directed to a torque sensor. The torque sensor comprises a first shaft and a second shaft connected coaxially. There is also provided a torsion bar converting a torque applied between the first shaft and the second shaft into a torsion displacement. A multi-polar magnet is fixed to the first shaft or to one end of the torsion bar. One set of magnetic yokes is fixed to the second shaft or to the other end of the

torsion bar and disposed in a magnetic field generated by the multi-polar magnet. One set of flux collecting rings is disposed along an outer surface of the one set of magnetic yokes and opposed to each other via an air gap in an axial direction. A magnetic sensor detects the density of magnetic flux generated in the air gap. An outer cylindrical surface of the one set of flux collecting rings is surrounded by a magnetic shield. (E.g., claim 1). One or more aspects thereby provide a magnetic shield surrounding an outer cylindrical surface of one set of flux collecting rings. According to various embodiments, the magnetic shield of the presently claimed invention does not cover all of the magnetic circuit of the torque sensor, but covers, e.g., the outer cylindrical surface of the flux collecting rings. Thereby, the configuration of the magnetic shield can be simplified, and installation of the magnetic shield is easier.

Without conceding that Laidlaw discloses any feature of the present invention, Laidlaw is directed to a flux brush torque sensor. The office action asserts that Laidlaw discloses the invention as claimed. Specifically, the office action contends that Laidlaw discloses a first shaft 14, a second shaft 16, a torsion bar 18, a multi-polar magnet 20, a magnetic yoke 21, flux collecting rings 50, 52 and magnetic sensor 48, corresponding to the claimed invention. The office action further states that a pair of flux brushes 42, 44 can include a bottom arcuate surface 54 that is adapted to magnetically engage the arcuate outer surface 56 of the flux rings (Laidlaw col. 4, lines 12 – 15).

To the contrary, Laidlaw fails to teach or suggest the invention, as presently claimed, when the claims are considered as a whole. Laidlaw fails to teach or suggests, for example, that “an outer cylindrical surface of said one set of flux collecting rings is surrounded by a magnetic shield.” (See, e.g., claim 1.) To the contrary, Laidlaw, element 56 represents an outer surface of respective collecting rings 50, 52 and fails to teach or suggest a magnetic shield. Moreover,

Laidlaw fails to teach or suggest anything regarding the desirability of providing a magnetic shield.

An advantage of providing a magnetic shield, as in the claimed invention, is to eliminate an erroneous detection of a torque signal which may be caused due to adverse influences of geomagnetism or any magnetic field generated around the torque sensor (specification page 1, lines 18 – 24). The outer surface 56 of the respective flux rings 50, 52 according to Laidlaw, on the other hand, apparently has no capability of shielding the adverse influences of geomagnetism or of any magnetic field generated around the torque sensor. For example, Figs. 10 – 12 of Laidlaw illustrate the magnetic fields 70 passing through the flux rings 50, 52.

Laidlaw fails to teach or suggest, for example, these elements recited in independent claim 1. It is respectfully submitted therefore that claim 1 is patentable over Laidlaw.

For at least these reasons, the combination of features recited in independent claim 1, when interpreted as a whole, is submitted to patentably distinguish over the prior art. In addition, Laidlaw clearly fails to show other claimed features as well.

With respect to the rejected dependent claims, the applicants respectfully submits that these claims are allowable not only by virtue of their dependency from independent claim 1, but also because of additional features they recite in combination.

New claims 5 – 17 have been added to further define the invention, and are believed to be patentable for reasons including these set out above. Support for new claim 5 is located, for example, on page 8, lines 23 – 25 of the specification. Support for new claims 6 and 13 is located, e.g., in Fig. 8 and the corresponding description. Support for new claims 7 and 14 can be found, for example, on page 7, lines 1 – 7 of the specification. Support for new claims 8 – 10 and 15 – 17 can be found, for example, at page 7, lines 4 – 20 of the specification. Support for

new claim 11 can be found, for example, on page 9 of the specification. New independent claim 12 incorporates language recited in claim 1, and should be allowable for reasons including, for example, those provided above.

Applicants respectfully submit that, as described above, the cited prior art does not show or suggest the combination of features recited in the claims. Applicants do not concede that the cited prior art shown any of the elements recited in the claims. However, applicants have provided specific examples of elements in the claims that are clearly not present in the cited prior art.

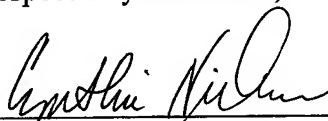
Applicants strongly emphasize that one reviewing the prosecution history should not interpret any of the examples applicant has described herein in connection with distinguishing over the prior art as limiting to those specific features in isolation. Rather, for the sake of simplicity, applicants have provided examples of why the claims described above are distinguishable over the cited prior art.

In view of the forgoing, the applicants respectfully submit that this application is in condition for allowance. A timely notice to that effect is respectfully requested. If questions relating to patentability remain, the examiner is invited to contact the undersigned by telephone.

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Please charge any unforeseen fees that may be due to Deposit Account No. 50-1147.

Respectfully submitted,

A handwritten signature in cursive script, appearing to read 'Cynthia K. Nicholson', written over a horizontal line.

Cynthia K. Nicholson

Reg. No. 36,880

Posz & Bethards, PLC  
11250 Roger Bacon Drive, Suite 10  
Reston, VA 20190  
Phone 703-707-9110  
Fax 703-707-9112  
Customer No. 23400